Reserve
1.96
R31Fsmo

Federal - State Cooperative
Snow Surveys and Water Supply Forecasts
for

Montana and Northern Wyoming Upper Missouri, Upper Columbia and Yellowstone Rivers

LIBRARY
CURRENT SERIAL RECORDS
MAR 17 1954
U. S. DEPARTMENT OF AGRICULTURE

DIVISION OF IRRIGATION, SOIL CONSERVATION SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE
AND
MONTANA AGRICULTURAL EXPERIMENT STATION

In cooperation with the U. S. Forest Service, U. S. Geological Survey, National Park Service, U. S. Bureau of Reclamation, State Engineers of Montana and Wyoming and other Federal, State and local organizations.

AS OF
MAR. 1, 1954

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

TO RECIPIENTS OF COOPERATIVE SNOW SURVEY
AND WATER SUPPLY FORECAST REPORTS:

Forecasts by U. S. Weather Bureau of total annual streamflow October-September, inclusive, at more than 300 gaging stations are issued monthly January through May in the publication WATER SUPPLY FORECASTS FOR THE WESTERN UNITED STATES.

Weather Bureau forecasts of runoff presented in that bulletin are computed from procedures based on mathematical analysis of the relation between precipitation and runoff.

The Weather Bureau bulletins may be secured by writing to:

Hydrologist in Charge
River Forecast Center
U. S. Weather Bureau
712 Federal Office Building
Kansas City 6, Missouri

For current information on local river and flood conditions, reference should be made to the appropriate River District Office, listed below:

Meteorologist in Charge Weather Bureau Office Box 1705 Helena, Mont.	Missouri River and tributaries above Fort Peck Dam; Milk River
Meteorologist in Charge Weather Bureau Airport Station Box 1338 Billings, Mont.	Yellowstone River and tributaries.
Meteorologist in Charge Weather Bureau Airport Station R.F.D. #1 Spokane, Washington	Columbia River and tributaries above and including Grand Coulee Dam.

State of Montana

FEDERAL - STATE COOPERATIVE SNOW SURVEYS
AND
WATER SUPPLY FORECASTS

FOR
MONTANA AND NORTHERN WYOMING
(Upper Missouri and Upper Columbia River Basins)

Report issued by:

Truman C. Anderson
State Conservationist
of Montana

M. M. Kelso
Director, Montana
Agricultural Experiment Station

Report Prepared by:

A. R. Codd
Hydraulic Engineer
Soil Conservation Service

and

O. W. Monson
Irrigation Engineer
Montana Agricultural Experiment Station

Soil Conservation Service
U. S. Department of Agriculture
and
Montana Agricultural Experiment Station
Bozeman, Montana

WATER SUPPLY OUTLOOK
FOR SEASON 1954
AS OF MARCH 1, 1954

* *
* The 1954 snow-pack is FAIR to GOOD over the Montana *
* mountains. The Missouri Basin pack is FAIR while the *
* Columbia Basin is GOOD to EXCELLENT on the northern *
* tributaries. Valley precipitation over the Missouri *
* Basin has been below average while precipitation *
* values over the Columbia have been above average. The *
* outlook for water supply this season on the Columbia *
* River is above average, while the Missouri River gener-* *
* ally appears to be below average with soil moisture in * *
* the valleys being deficient. There may be water *
* shortages in certain areas. The Sun River Basin is an * *
* exception to these statements where the snow-pack is *
* extremely high approaching a record pack over the past * *
* 20 years. *
* *

JEFFERSON RIVER:

The snow-pack over the Beaverhead and Jefferson River as a whole is below average and preliminary water forecasts would at this time indicate that the tributaries will flow approximately 20% below the average.

MADISON RIVER:

The snow-pack over the Madison River is slightly above average with an outlook of water supply being approximately 100% average.

GALLATIN RIVER:

Although some of the snow measurements on the Gallatin showed higher than normal preliminary forecasts of water supply indicate approximately 92-80% average.

MISSOURI RIVER MAIN STEM:

Some of the tributaries to the Main Stem of the Missouri River, such as the Teton, Sun and Marias River have a snow-pack well above average. However, the deficiency of water above Toston will affect the flow into Fort Peck, which appears at this time to be approximately 94% average. The snow cover on the Sun River is 72% greater than last year and 47% greater than 1952, and 148% average for 7 to 20 years. It is anticipated that the flow of the Sun River at Vaughn will be approximately 578,000 acre feet, or 128% average. This figure is the observed flow plus or minus changes of the several reservoirs above Vaughn. With Gibbons Reservoir now at 73% capacity, it would appear to be a little high in comparison with the anticipated runoff from this basin.

YELLOWSTONE RIVER:

The snow-pack over the Upper Yellowstone River Basin in the Park is approximately 10% above average and the river at Corwin Springs will more than likely flow approximately 2 million acre feet during April-September.

COLUMBIA RIVER:

The snow-pack over the Flathead Basin is better than last year by 67%, and 35% better than 1952 - 124% average. It is anticipated that the water supply for Hungry Horse Reservoir will be approximately 115% average on 2,591,000 acre feet from April through September, provided normal. A normal accumulation of snow occurs during March. With this same assumption, the Flathead at Columbia Falls should flow about 115% average, also. On the Clark Fork River, above Missoula, the snow-pack is slightly above average and the flow of this stream will probably only reach 103% average. Considerable snow exists on the Clark Fork River below Missoula and when combined with the Flathead, should produce about 129% average flow at Cabinet Gorge during the period April through September.

* * * *

COMPARISON OF SNOW COVER WITH THAT OF PREVIOUS YEARS

Summary of Snow Survey Data by Tributary Watersheds as of March 1, 1954

TRIBUTARY BASINS	No. of Courses Averaged	No. Years Record	1954 Snow Water Equivalent expressed as Percent of 1953%	1952%	AVERAGE%
MISSOURI RIVER BASIN IN MONTANA					
JEFFERSON	26	3-18	76	68	70
Rock-Beaverhead	5	3-18	61	46	47
Horse Prarie	6	6	73	71	77
Big Hole	7	7	88	84	93
Wise River	2	6	90	89	98
Ruby River	6	5	69	57	77
MADISON	7	6-20	110	63	105
GALLATIN	4	7-19	95	64	103
MISSOURI MAIN STEM	9	9-20	101	82	107
Teton River	3	6	111	160	130
Sun River	7	6-20	172	147	148
Marias River	1	20	160	131	162
Milk River	1	13	110	65	91
UPPER YELLOWSTONE	7	2-17	102	83	104
Shields River	1	16	66	49	95
LOWER YELLOWSTONE, WYOMING					
Shoshone	2	5-11	93	81	93
Wind River	14	4-17	97	95	90
Popo Agie	6	5-17	120	81	112
Owl Creek on the Big Horn River	2	5	155	135	125
Wood River on Greybull River	2	2-5	105	163	105
Tongue River	3	3-4	127	140	142
Clear Creek on the Powder River	1	3	58	53	51
Crazy Woman Creek on the Powder Riv	1	1	90	--	--
COLUMBIA RIVER BASIN IN MONTANA					
KOOTENAI RIVER, above Libby, Montana	9	3-17	152	144	150
FLATHEAD RIVER	16	3-20	167	135	124
UPPER CLARKFORK	15	2-20	111	105	127
PEND OREILLE	6	7-29	138	106	135

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

INDEX TO MONTANA & NORTHERN WYOMING SNOW COURSES

Drainage Basin and Course Name	Montana Number	Elev.	Location Sec. Lat.	Twp.	Range Long.	Record Began	Measuring Dates[a]	Measured By:[b]
MISSOURI RIVER DRAINAGE								
JEFFERSON RIVER								
(ROCK-BEAVERHEAD)								
Lakeview Ridge	11E3	7400	27	14S	2W	1948	3,4,5	9
Lakeview Canyon	11E4	6930	26	14S	2W	1948	3,4,5	9
Limekiln	12E2	6950	5	15S	9W	1948	3,4	1
White Pine Ridge	12E1	8850	18	14S	9W	1948	3,4	1
(HORSE PRAIRIE)								
Bloody Dick	13010	7600	12	8S	16W	1948	3,4	1
Cold Stone	13D9	8100	11	8S	16W	1948	3,4	1
Lemhi Pass	13E1	7480	9	10S	15W	1948	3,4	1
Terrell Creek	13D12	6650	14	9S	15W	1948	3,4	1
Trail Creek	13E2	7090	15	10S	15W	1948	3,4	1
Selway Junction	13D11	6800	27	8S	15W	1948	3,4	1
(BIG HOLE)								
Big Hole Pass	13D3	7440	28	3S	18W	1948	3,4	1
Big Hole Pass (Below)	13D4	6900	24	3S	18W	1948	3,4	1
East Boundary	1305	6700	22	3S	17W	1948	3,4	1
Gibbons Pass	13D2	7100	4	2S	19W	1934	1,2,3,4,5	1,2
Jahnke Creek	13D6	7340	25	7S	16W	1948	3,4	1
Miner Forks	13D6	7300	24	6S	17W	1948	3,4	1
Miner Lake	13D7	6720	10	6S	16W	1945	3,4,5	1
(WISE RIVER)								
Anderson Mdw.	13B14	7000	18	3S	12W	1948	3,4	1
Elk Horn	13D15	8450	15	4S	12W	1934	3,4,5	2
Wise River	13D13	6300	15	2S	12W	1948	3,4	1
(RUBY RIVER)								
Cottonwood	11E2	5900	24	10S	3W	1948	3,4	1
Cottonwood (Upper)	11E1	8400	30	10S	2W	1948	3,4	1
Flashlight	12D3	6950	22	8S	7W	1945	3,4,5	1
Tobacco Root	12D2	6900	13	4S	4W	1948	3,4	1
Vigilante	11D1	6125	28	9S	3W	1948	3,4	1
MADISON RIVER								
Nebgen	11B5	6550	22	11S	3E	1934	1,2,3,4,5	2
West Yellowstone	11B7	6700	34	13S	5E	1934	1,2,3,4,5	2
Norris Basin	10E2	7500	44°-44'		110°-42'	1935	3,4	5,6
GALLATIN RIVER								
Devil's Slide	1004	8100	14	5S	6E	1935	2,3,4,5	2,6
Hood Meadow	10D3	6600	22	4S	6E	1934	2,3,4,5	2,6
Mystic Lake	10D2	6600	30	3S	7E	1935	2,3,4	6,7
New World	10D1	6700	24	3S	6E	1939	1,2,3,4,5	6,7
21-Mile	11E6	7150	1	11S	5E	1934	1,2,3,4,5	2
MISSOURI RIVER MAIN STEM								
Cheesman Reservoir	12C5	6200	2	8N	5W	1936	1,2,3,4,5	2
Crystal Lake	9C1	6100	24	12N	17E	1941	3,4	1
Grasshopper	10C2	7000	19	9N	8E	1938	3,4	1
Kinge Hill	10C1	7950	35	13N	7E	1937	3,4,5	2
Picnic Grounds	12C6	6500	22	5N	6W	1940	2,3,4	3
Pipestone Pass	12D1	7200	11	1N	7W	1938	2,3,4,5	1
Stemple Pass	12C1	6900	16	13N	7W	1934	3,4,5	2
Ten Mile Creek, Lower	12C2	6250	13	8N	6W	1935	1,2,3,4,5	2
Ten Mile Creek, Middle	12C3	6800	13	8N	6W	1934	1,2,3,4,5	2
Ten Mile Creek, Upper	12C4	8000	19	8N	5W	1935	1,2,3,4,5	2
(TETON RIVER)								
Freight Creek	12A1	6000	13	26N	10W	1948	3,4	1
Waldron Creek	12B2	5600	16	25N	9W	1948	3,4	1
West Fork	12B1	6000	6	25N	9W	1948	3,4	1
(SUN RIVER)								
Bench Mark	12B8	5500	9	20N	10W	1948	3,4	1
Cabin Creek	12B6	5400	33	23N	10W	1949	3,4	1
5-Bail	12B9	5600	36	20N	10W	1948	3,4	1
Gates Park	12B5	5300	31	24N	10W	1949	3,4	1
Goat Mountain	1287	7000	20	22N	10W	1934	3,4	2
My Lake	13B9	7300	21	23N	12W	1950	3,4	1
Wrong Creek Ridge	12B3	6800	17	25N	10W	1949	3,4	1
Wrong Creek	12B4	5700	32	25N	10W	1949	3,4	1
(MARIAS RIVER)								
Marias Pass	13A5	5250	34	30N	14W	1936	1,2,3,4,5	2
(MILK RIVER)								
Rocky Boy	9A1	5200	15	28N	16E	1941	3,4	7
(MUSSELSHELL RIVER)								
Grasshopper	10C3	7000	19	9N	8E	1938	3,4	1
(UPPER YELLOWSTONE)								
Camp Senia	901	7890	2	8S	18E	1937	4	1
Canyon	10E3	7750	44°-44'		110°-30'	1938	1,2,3,4,5	12
Cooke City	1007	7400	25	9S	14E	1937	1,2,3,4,5	5
Crevice Mt.	1005	8400	29	9S	9E	1935	3,4	1
Independance	10D6	8000	22	7S	12E	1941	3,4	12
Lake Camp	10E4	7850	44°-34'		110°-24'	1937	1,2,3,4,5	12
Lupine Creek	10E1	7300	44°-54'		110°-37'	1938	1,2,3,4,5	5
(SWIFTDS RIVER)								
Porcupine	10C3	6500	10	4N	10E	1938	3,4	1
LOWER YELLOWSTONE								
(Wind River) Wyoming								
Brooks Lake #3	10F2	9200	23	44N	110W	1939	2,3,4,5	12
Burroughs Creek	9F6	8800	15	43N	107W	1948	2,3,4,5	12
Dimwoodie	9F10	10000	9	34N	105W	1948	2,3,4,5	12
Dry Creek	9F9	9500	34	4N	6W	1948	2,3,4,5	12
DuNoir	9F2	8750	27	42N	108W	1940	2,3,4,5	12
Geyser Creek	9F3	8500	12	41N	108W	1948	2,3,4,5	12
Hobbe Park	9G2	10000	22	2S	3W	1948	2,3,4,5	12
Little Warm	9F4	9500	24	41N	108W	1948	2,3,4,5	12
Mosquito Park R.S.	9G3	9500	23	2S	3W	1940	2,3,4,5	12
Sheridan R.S.	9F1	7500	3	42N	109W	1939	2,3,4,5	12
St. Lawrence R.S.	9F11	9000	26	1N	4W	1940	2,3,4,5	12
T-Cross Ranch	9F5	8000	1	43N	107W	1940	2,3,4,5	12
Trout Creek	9G1	8400	5	2S	2W	1948	2,3,4,5	12
Togwotee Pass	10F1	9600	29	44N	110W	1936	2,3,4,5	10
(Popo Agie River) Wyoming								
Blue Ridge	8G2	9500	23	31N	101W	1939	2,3,4,5	12
Grannier Meadows	8G4	9000	19	30N	100W	1936	2,3,4,5	12
Larsen Creek	9G4	9000	12	30N	103W	1948	3,4,5	12
Sawmill Glade	8G1	8500	3	31N	101W	1939	2,3,4,5	12
South Pass	8G3	9000	13	30N	101W	1939	2,3,4,5	12

Drainage Basin and Course Name	Montana Number	Elev.	Location Sec. Lat.	Twp.	Range Long.	Record Began	Measuring Dates[a]	Measured By: b
MISSOURI RIVER DRAINAGE CONT.								
BIG HORN RIVER Wyoming								
Beavera Mill	9F8	8900	6	43N	102W	1948	2,3,4,5	12
Owl Creek	8F1	8700	36	43N	101W	1948	2,3,4,5	12
Tensleep R.S.	7S3	8300	30	49N	86W	1935	4,5	1
Timber Creek	9S2	8800	25	47N	103W	1948	4,5	12
Ranger Creek	7S1	8800	32	53N	88W	1935	4,5	1
Wood River	9F7	8000	28	46N	103W	1939	2,3,4,5	12
(SHOSHONE RIVER) Wyoming								
East Entrance	10B6	7000	17	52N	109W	1948	1,2,3,4,5	5
Sylvan Pass	10B5	7100	12	52N	110W	1936	1,2,3,4,5	5
TONGUE RIVER Wyoming								
Big Goose	7S2	7700	4	53N	86W	1945	2,3,4,5	1
Burgess Ranger Sta.	7S4	7900	36	56N	89W	1950	2,3,4,5	12
Dome Lake	7S5	8800	11	53N	87W	1950	2,3,4,5	12
Lodgepole	9S1	8200	32	56N	106W	1940	4,5	1
POWDER RIVER								
North Powder	7S8	8500	5	47N	85W	1951	2,3,4,5	12
Muddy Pass	7S7	9700	11	48N	85W	1950	2,3,4,5	1
Soldier Park	7S6	8700	36	51N	85W	1950	2,3,4,5	12
Sour Dough	6S1	8500	17	49N	84W	1936	2,3,4,5	1
Red Fork	7S1	7000	18	43N	85W	1936	2,3,4,5	12
COLUMBIA RIVER BASIN								
KOOTENAI RIVER								
Baree Mountain	15B1	6000	1	25N	31W	1937	4,5	1
Blue Bird Basin	14A1	6800	24	37N	26W	1937	4,5	1
Red Mountain	15A1	6000	4	36N	29W	1937	3,4,5	1
FLATHEAD RIVER								
Basin Creek	13B14	5000	11	19N	12W	1951	2,3,4,5	1
Big Creek	1383	6750	667	22N	18W	1941	3,4,5	4
Brush Creek	14A4	5000	13	30N	26W	1937	3,4,5	1
Cattle Queen	13A1	4700	7	35N	17W	1939	3,4,5	5
Desert Mountain	13A2	5600	24	31N	19W	1937	1,2,3,4,5	1
Hell Roaring Divide	14A3	5770	35	32N	22W	1942	3,4,5	1
Holbrook	13B13	4530	18	21N	13W	1951	1,2,3,4,5	1
Kishenehn	14A2	4300	7	37N	21W	1946	4,5	5
Limestone Pass	13B8	7000	28	18N	12W	1948	3,4,5	1
Logan Creek	14A5	4300	34	30N	24W	1937	3,4,5	1
Marias Pass	13A5	5250	34	30N	14W	1934	1,2,3,4,5	2
Snow Lab. #16	13A9	5200	15	29N	14W	1946	1,2,3,4,5	2
Spotted Bear Mt.	13B2	7000	23	25N	15W	1948	3,4,5	1
Strawberry Lake	13A10	6500	11	28N	19W	1948	3,4,5	1
Trinkus Lake	13B1	6500	9	25N	17W	1948	3,4,5	1
Trout Lake #2	13A12	3600	21	28N	17W	1948	3,4,5	1
Upper Holland Lake	13B5	7000	28	20N	16W	1948	3,4,5	1
Twin Creeks	13B11	3580	14	26N	16W	1951	2,3,4,5	1
Quintonkon	13A13	3800	11	26N	17W	1951	2,3,4,5	1
Coyote Hill	13B10	4200	12	18N	16W	1951	1,2,3,4,5	1
El Dorado Mine	1309	7800	23	8N	12W	1946	4	11
Gold Creek Lake	13C8	7200	14	8N	12W	1946	4	11
Intergaard	13C4	6450	6	5N	13W	1939	2,3,4	3
Lubrecht Forest	13C8	5400	31	14N	15W	1951	1,2,3,4,5	13
North Fork Jocko	13B7	6330	3	17N	17W	1941	3,4,5	4
Pionio Grounds	1206	6500	22	5N	6W	1940	2,3,4	3
Pipestone Pass	1201	7200	11	1N	7W	1938	2,3,4,5	1
Rainy Lake	13B6	4300	11	18N	16W	1947	3,4,5	1
Slide Rock Mountain	13C2	7100	26	10N	16W	1937	4	1
Southern Cross	1305	6500	9	5N	13W	1939	2,3,4	3
Stemple Pass	13C1	6900	16	13N	7W	1934	3,4,5	2
Storm Lake No. 2	13C7	7780	19	14N	13W	1939	2,3,4	1
Stuart Mill	1306	6500	19	5N	13W	1939	2,3,4	3
Stuart Mountain #1	13C1	7400	6	14N	18W	1936	4	1
FEND ORELLE RIVER								
Baree Mountain	1381	6000	1	25N	31W	1937	4,5	1
Freezeout Submit #2	15B10	6800	21	15N	27W	1951	4	1
Noodoo Creek	15C1	6200	9&16	14N	27W	1937	4	1
BITTERROOT RIVER								
East Fork Ranger Stn.	1301	5400	16	2N	17W	1937	4	1
Gibbons Pass	13D2	7100	4	2S	19W	1934	1,2,3,4,5	1
Mud Creek Pasture	14C1	4600	24	11N	21W	1937	3	1
Nez Perce Camp	14D2	5580	19&20	1S	23W	1937	4	1
Nezperce Pass	14D1	6575	32	28N	16E	1937	4	1
Skalkaho Summit	13C3	7259	30	6N	17W	1937	4	1
SASKATCHEWAN RIVER BASIN								
ST. MARY RIVER								
Iceberg Lake	13A3	6000	48°-50'		113°-42'	1922	5	2,8
Piegan Pass #1	13A4	5000	48°-46'		113°-40'	1922	5	2,8
Piegan Pass #6	13A6	6500	48°-45'		113°-42'	1922	5	2,8
Mount Allan #7	13A7	7000	48°-44'		113°-40'	1922	5	2,8
Ptarmigan #8	13A8	5800	48°-50'		113°-42'	1922	5	2,8

a. Numerals 1,2,3,4, and 5 refer to January 1, February 1, March 1, April 1, and May 1

b. Numerals refer to Agency that assures the snow survey as follows:

1. U.S. Forest Service
2. U.S. Geological Survey and U.S. Engineer Corps
3. Montana Power Company
4. U.S. Indian Service
5. National Park Service
6. Montana Experiment Station
7. City of Bozeman
8. Dominion Water and Power Bureau
9. U.S. Fish and Wildlife Service
10. U.S. Bureau of Reclamation
11. Cearlodge Citizens Committee
12. Soil Conservation Service
13. Montana State Forestry School

5,R-11,481-a

STATUS OF RESERVOIR STORAGE MARCH 1, 1954

BASIN & STREAM	RESERVOIR	USEABLE CAPACITY (M.A.F.)	THOUSAND ACRE FEET IN STORAGE MARCH 1				
			1954	1953	1952	1951	10-yr avg 1942-51
MISSOURI RIVER BASIN							
Beaverhead	Lima	84.00	18.8	30.9	35.6	37.9	39.4
Ruby River	Ruby	38.85					
Madison Riv	Hebgen Lk	345.00	155.1	179.3	264.4	230.8	237.6
Madison Riv	Ennis Lk	41.00	38.5	34.4	35.1	35.2	35.1
Hyalite Crk	Middle Crk		2.3	--	--	--	New
Missouri Riv	Canyon Ferry	401.70	421.0	18.4	18.9	19.3	30.4
Missouri Riv	Hauser Lk (Inc. Lk Helena)	62.50	62.5	57.3	46.3	57.2	50.7
Missouri Riv	Lk Helena	10.45	10.4	8.6	5.1	8.6	12.9xx
Missouri Riv	Holter Lk	81.92	74.9	58.7	49.8	65.1	56.1
N.Fk.Sun Riv	Gibson	105.00	76.7	53.4	66.4	81.5	64.5
N.Fk.Sun Riv	Willow Crk	32.30	26.4	20.1	24.0	23.8	14.5
N.Fk.Sun Riv	Pishkun	32.00	20.6	17.7	23.3	18.9	18.5
Teton Riv	Bynum						
Birch Crk	Swift	30.00	22.6	--	23.1	28.1	23.5
Dupuyer & Birch Crk	Lk Francis	112.00	92.2	95.5	93.6	93.5	82.0
Judith Riv	Ackley Lk	5.82	2.4	2.5	3.8	4.9	4.4
Missouri Riv	Ft. Peck	19,000.00	12,180.00	12,570.	11,690.	12,340.	10,458.
Milk Riv	Fresno	127.20	79.0	76.8	90.3	65.9	51.3
Milk Riv	Nelson	66.80	28.8	30.3	38.5	15.7	28.2
W.Rosebud Crk	Mystic Lk	20.80	10.1	6.8	8.2	8.7	9.3
Red Lodge Crk	Cooney	27.50			8.6	8.4	9.6
Tongue Riv	Tongue Riv	73.90		14.5	18.3	8.4	9.9
Swiftcurrent Crk	Sherburne Lk	66.10		17.2	18.4	27.9	23.8
MISSOURI RIVER BASIN * WYOMING							
Shoshone Riv	Buffalo Bill	440.00	153.2	151.2	237.0	295.6	297.4
Wind Riv	Boysen	758.00	361.9	540.8	122.0	--	--
Wind Riv	Pilot Butte	31.6	12.0	12.4	9.3	8.4	12.7
Bull Creek	Bull Lk	152.00	76.8	60.8	66.6	89.5	62.3
Belle Fourche	Key Hole	190.00	8.7	8.3			
MISSOURI RIVER BASIN - NORTH DAKOTA							
Hart River	Hart Butte	54.80	54.4				
Hart River	Dickerson	4.3	6.8				
MISSOURI RIVER BASIN - SOUTH DAKOTA							
Belle Fourche	Belle Fourche	185.00	109.1	52.0	88.0	81.0	116.0
Cheyenne River	Angostura	160.00	31.0	109.0	112.0	28.0	--
Cheyenne River	Deerfield	15.1	15.4	13.5			
Grand River	Shadehill	84.00	82.3	78.0			

xx 8 year average

STATUS OF RESERVOIR STORAGE MARCH 1, 1954

BASIN & STREAM	RESERVOIR	USEABLE CAPACITY (M.A.F.)	THOUSAND ACRE FEET IN STORAGE ABOUT MARCH 1				
			1954	1953	1952	1951	10-yr avg 1942-51
COLUMBIA RIVER BASIN							
Flint Crk	Georgetown Lk	31.00	21.1	22.9	23.4	23.0	23.7
S.Fk.Flathead	Hungry Horse	3,500.00	2,021.0	706.5	65.8	--	--
Flathead Riv	Flathead Lk	1,791.00	836.5	828.1	730.1	902.7	720.4
Little *Bitterroot	Little Bitterroot	36.10	28.4	29.4	36.1	34.8	15.0
*Dry Fork Crk	Dry Fork	6.70	2.4	4.1	4.1	4.4	2.2
**Flathead Irrigation Pr.	Mission Valley	98.60	19.0	33.6	34.6	49.8	37.0
Jocko Crk	Lwr Jock Lk	7.6	Snow Bound	Snow Bound	Snow Bound	Snow Bound	Snow Bound

* Sum of two reservoirs on Little Bitterroot
* Sum of two reservoirs on Dry Fork Creek
** Sum of (8) eight reservoirs on Project

MONTANA SNOW SURVEYS - MARCH 1, 1954

MISSOURI BASIN DRAINAGE BASIN AND SNOW COURSE	No.	Elev.	SNOW COVER MEASUREMENTS 1954 Date of Survey	Snow Depth (In.)	Water Content (In.)	Past Record Water Content (In.) 1953	1952	Average	Years of Record
JEFFERSON RIVER									
(Rock-Beaverhead)									
Lakeview Ridge	11E3	7400	3/2	40	7.9	9.9	13.4	9.2	6
Lakeview Canyon	11E4	6930	3/2	38	10.2	11.2	14.6	11.3	6
Limekiln	12E2	6950	2/11	00	0.0	10.0	10.0	1.6	6
White Pine Rdg	12E1	8850	2/11	16	2.7	5.8	6.6	5.2	6
*Kilgore									
*Camp Creek	12E3	6800	2/28	32	8.7	11.5	18.9	8.7	18
*Blue Ldg Mine	11E11	6700							
(Horse Prarie)									
Bloody Dick	13D10	7600	2/15	33	8.8	12.0	11.0	10.9	6
Gold Stone	13D9	8100	2/15	40	11.8	15.4	13.0	13.6	6
Lemhi Pass	13E1	7400	2/10	18	4.7	6.1	11.0	8.2	6
Terrell Creek	13D12	6650	2/12	13	3.6	5.6	4.6	4.5	6
Trail Creek	13E2	7090	2/10	20	4.8	6.4	8.1	7.0	6
Selway Junction	13D11	6500	2/12	23	6.0	8.4	8.2	7.4	6
(Big Hole)									
Big Hole Pass	13D3	7440	2/16	44	14.1	14.6	17.6	16.0	6
Big Hole (Below)	13D4	6900	2/16	40	12.3	12.9	13.6	13.6	6
East Boundary	13D5	6700	2/16	24	6.2	7.3	7.9	7.6	6
Gibbons Pass	13D2	7100	2/25	64	21.4	24.4	25.6	19.3	20
Jahnke Creek	13D8	7340	2/15	35	8.8	11.4	10.4	10.3	6
Miner Forks	13D6	7300	2/14	38	10.2	12.3	10.8	10.8	6
Miner Lake	13D7	6720	2/14	32	6.9	6.9	7.6	7.4	9
*Moose Creek	13D16	6200	3/1	51	15.6	19.0	--	14.2	14
(Wise River)									
Anderson Meadow	13D14	7000	2/18	31	7.6	8.4	8.3	7.8	6
Elk Horn	13D15	8450							
Wise River	13D13	6300	2/18	23	5.1	5.7	6.0	5.2	6
(Ruby River)									
Cottonwood	11E2	5900	2/10	26	7.2	8.2	11.4	8.0	6
Cottonwood (Up)	11E1	8400	2/10	26	7.4	9.1	13.0	8.7	6
Flashlight	12D3	6950	3/2	17	3.7	6.4	4.4	4.1	9
Tobacco Root	12D2	6900	2/9	21	5.1	10.6	11.2	9.0	6
Vigilante	11D1	6125	2/10	5	1.1	1.5	3.3	1.3	6
MADISON RIVER									
Hebgen	11E5	6550	3/1	36	10.1	9.3	18.5	11.0	20
W. Yellowstone	11E7	6700	3/1	36	10.4	10.0	16.5	10.3	20
21-Mile	11E6	7150	3/1	56	16.4	14.7	25.3	14.2	20
*Big Springs	11E9	6500	2/26	62	20.8	18.9	31.0	18.5	18
*Island Park	11E10	3600	2/27	51	15.5	15.1	26.4	14.7	18
*Valley View	11E8	6500	2/27	45	12.4	12.9	23.8	13.6	9
Norris Basin	10E2	7500	3/1	34	9.8	6.3	9.3	8.1	13

*Adjacent Basin

MONTANA SNOW SURVEYS - MARCH 1, 1954

MISSOURI BASIN DRAINAGE BASIN AND SNOW COURSE	No.	Elev.	Date of Survey	SNOW COVER MEASUREMENTS 1954 Snow Depth (In.)	1954 Water Content (In.)	Past Record Water Content (In.) 1953	1952	Average	Years of Record
GALLATIN RIVER									
Devil's Slide	10D4	8100	2/27	48	13.7	15.6	20.5	15.3	19
Hood Meadow	10D3	6600	2/25	20	5.6	6.4	10.3	6.6	19
New World	10D1	6700	3/3	26	6.8	7.8	10.4	8.6	12
21-Mile	11E6	7150	3/1	56	16.4	14.7	25.3	14.2	20
MISSOURI RIVER MAIN STEM									
Chessman Res.	12C5	6200	3/1	15	3.4	4.2	5.7	4.4	18
Crystal Lake	9C1	6100	2/27	44	9.4	8.8	14.4	10.3	13
Kings Hill	10C1	7950	3/2	44	11.9	9.7	14.1	10.4	20
Picnic Grounds	13C6	6500	3/1	20	4.2	6.0	6.2	4.4	9
Pipestone Pass	12D1	7200	3/1	17	4.4	4.9	4.9	4.2	16
Stemple Pass	12C1	6900	3/2	45	12.1	8.9	12.0	8.3	20
Tenmile, Lower	12C2	6250	3/3	26	6.4	6.4	7.2	5.7	19
Tenmile, Middle	12C3	6800	3/4	35	8.8	9.5	10.1	8.3	20
Tenmile, Upper (Teton River)	12C4	8000	3/4	39	10.9	12.1	12.9	10.7	19
Fright Creek	12A1	6000	2/27	64	21.2	19.7	14.0	16.4	6
Waldron Creek	12B2	5600	2/26	34	9.5	7.2	5.9	7.1	6
West Fork (Sun River)	12B1	6000	2/26	62	20.0	18.8	11.4	15.5	6
Benchmark	12B8	5500	2/25	42	15.0	7.0	10.1	8.9	6
Cabin Creek	12B6	5400	2/26	33	9.0	6.1	6.8	6.8	5
5-Bull	12B9	5600	2/25	38	12.6	5.1	6.5	7.0	6
Gates Park	12B5	5300	2/27	50	14.7	8.1	10.5	10.1	5
Goat Mountain	12B7	7000	3/3	57	16.3	9.5	11.2	8.7	20
Wrong Ridge	12B3	6800	3/1	82	27.2	18.5	19.3	21.1	5
Wrong Creek (Marias River)	12B4	5700	2/28	62	20.4	12.6	14.3	15.1	5
Marias Pass (Milk River)	13A5	5250	3/3	75	24.3	15.2	18.6	15.0	20
Rocky Boy	9A1	5200	3/3	17	4.3	3.9	6.6	4.7	13
UPPER YELLOWSTONE									
Canyon	10E3	7750	3/1	47	15.1	13.9	16.3	13.6	8
Cooke City	10D7	7400	2/28	33	9.8	8.5	9.3	6.8	17
Crevice Mt.	10D5	8400	2/28	32	7.4	7.9	11.7	8.3	15
Lake Camp	10E4	7850	3/1	38	9.5	8.8	12.8	9.1	17

*Adjacent Basin

MONTANA SNOW SURVEYS - MARCH 1, 1954

MISSOURI BASIN DRAINAGE BASIN AND SNOW COURSE	No.	Elev.	SNOW COVER MEASUREMENTS 1954 Date of Survey	Snow Depth (In.)	Water Content (In.)	Past Record Water Content (In.) 1953	1952	Average	Years of Record
UPPER YELLOWSTONE (Cont'd)									
Lupine	10E1	7300	3/1	38	10.4	8.7	13.7	8.5	15
*Lewis Lake Div.	10E9	7000	2/26	116	41.2	39.8	45.8	35.4	35
*Astor Creek	10E8	7700	2/26	90	31.0	30.7	34.5	25.3	35
*Tom Thumb Summit (Shields River)	10E7	7900	2/26	73	22.5	N.R.	25.5	23.2	2
Porcupine	10C3	9200	2/27	20	5.1	7.8	10.4	5.4	16
LOWER YELLOWSTONE (Wind River - Ab. Div. Dam)									
Brooks Lake #3	10F2	9200	2/24	65	22.0	22.4	25.1	20.7	17
Burroughs Creek	9F6	8800	2/25	42	13.2	15.2	10.5	15.6	5
Du Noir	9F2	8750	2/24	26	7.2	7.4	6.6	9.1	13
Geyser Creek	9F3	8500	2/25	24	6.9	7.2	6.8	8.8	5
Little Warm	9F4	9500	2/25	50	14.9	14.8	15.0	18.3	5
Sheridan	9F1	7500	2/24	27	7.6	8.2	7.3	6.6	17
T-Cross Ranch	9F5	8000	2/26	32	7.2	7.5	4.9	6.4	13
*Togwotee Pass	9F1	9600	2/27	84	26.3	24.4	25.9	27.8	4
Dinwoodie	9F10	10000	2/23	37	9.5	11.8	12.2	13.3	5
Dry Creek	9F9	9500	2/23	20	4.5	6.9	5.9	7.3	5
Hobbs Park	9G2	10000	2/28	54	17.0	13.9	19.7	18.6	5
Mosquito Park	9G3	9500	2/28	30	7.7	7.0	7.9	7.3	10
St. Lawrence	9F11	9000	2/27	23	5.5	6.0	8.1	6.2	10
Trout Creek	9G1	8400	2/28	21	4.5	6.8	6.6	6.0	5
POPO AGIE RIVER									
Blue Ridge	8G2	9500	3/1	54	13.0	10.2	14.5	9.9	14
Grannier Meadows	8G4	9000	3/1	53	13.5	11.1	16.6	11.5	17
*Larsen Creek	9G4	9000	2/24	18	4.2	4.0	9.5	11.9	5
Sawmill Glade	8G1	8500	3/1	38	7.2	6.5	8.0	6.2	14
South Pass	8G3	9000	3/1	55	14.6	12.3	23.1	11.5	13
Mulligan Park	9G5	8900		30	7.0	9.8	9.2	9.9	12
*Dutch Joe	9C6	8700	2/24	23	5.6	6.4	9.4	7.9	2
BIG HORN RIVER (Wyo.)									
Beavers Mill	9F8	8000							
Owl Creek	8F1	8700							
Timber Creek	9E2	9000	3/2	15	3.1	4.5	2.5	4.9	5
Wood River	9E7	8000	3/1	24	5.4	3.6	2.7	3.2	2
Tensleep R. S.	7E3	8200							
Ranger Creek	7E1	8800							

*Adjacent Basin

MONTANA SNOW SURVEYS - MARCH 1, 1954

MISSOURI BASIN DRAINAGE BASIN AND SNOW COURSE	No.	Elev.	SNOW COVER MEASUREMENTS 1954 Date of Survey	Snow Depth (In.)	Water Content (In.)	Past Record Water Content (In.) 1953	1952	Average	Years of Record
SHOSHONE RIVER									
East Entrance	10E6	7000	3/1	36	10.8	10.9	13.0	10.7	5
Sylvan Pass	10E5	7100	3/1	46	11.5	13.1	14.5	13.3	11
TONGUE RIVER									
Burgess Jct.	7E4	7900	3/3	50	16.2	11.8	10.3	11.1	3
Big Goose	7E2	7700	3/4	15	3.8	4.2	4.6	3.7	3
Dome Lake	7E5	9000	3/4	32	8.8	6.6	5.6	5.5	4
POWDER RIVER									
Sour Dough	6E1	8500	3/5	24	5.4	6.0	--	6.0	1
North Powder	7E8	8500							
Soldier Park	7E6	8700	3/5	15	1.9	3.3	3.6	3.7	3
Muddy Pass	7E7	9700							
KOOTENAI RIVER ABOVE Libby, Mont.									
Brush Creek,Mont.	14A4	5000	2/26	58	18.8	10.8	11.9	12.7	7
Fernie, B.C.	10	3500	3/1	50	15.2	8.0	9.5	7.7	15
Fernie, New, B. C.	10A	4100	3/1	70	21.3	13.8	13.9	14.0	3
Kimberley, B. C.	20B	3800	2/28	46	12.2	7.7	9.0	6.6	13
Marble Canyon, B. C.	32	5000	3/1	62	16.5	14.7	13.6	14.7	7
Red Mountain, Mont.	15A1	6000	3/1	75	24.4	17.6	16.7	15.8	17
Sinclair Pass, B. C.	8A	4500	3/2	34	8.9	4.5	5.6	5.3	8
Sullivan Mine, B. C.	20A	5100	3/1	54	17.4	13.2	16.1	13.2	8
Upper Elk River, B.C.	41	4400	3/1	47	12.9	6.8	6.5	8.2	6
BITTERROOT									
Gibbons Pass	13D2	7100	2/25	64	21.4	24.4	25.6	19.3	20
Nezperce Pass	14D1	6575	2/24	48	14.0	--	--	15.1	15
Nezperce Camp	14D2	5580	2/25	42	11.5	--	--	11.2	14
*Moose Creek	13D16	6200	3/1	51	15.6	19.0	--	14.2	14

*Adjacent Basin

MONTANA SNOW SURVEYS - MARCH 1, 1954

COLUMBIA BASIN DRAINAGE BASIN AND SNOW COURSE	No.	Elev.	SNOW COVER MEASUREMENTS 1954 Date of Survey	Snow Depth (In.)	Water Content (In.)	Past Record Water Content (In.) 1953	1952	Average	Years of Record
FLATHEAD RIVER									
Blue Bird	14A1	6800							
Basin Creek	13B14	5000	3/2	45	13.1	5.9	10.7	8.7	3
Big Creek	13B3	6750	3/5	94	35.5	35.8	40.4	35.4	13
Brush Creek	14A4	5000	2/26	58	18.8	10.8	11.9	12.7	7
Cattle Queen	13A1	4700	2/28	116	38.4	29.5	32.4	30.1	9
Desert Mountain	13A2	5600	2/25	51	16.6	12.3	16.1	12.8	10
Goat Mountain	12B7	7000	3/3	57	16.3	9.5	11.2	8.7	20
Hell Roaring Div.	14A3	5700	2/24	88	31.4	26.2	28.6	29.4	4
Holbrook	14B13	4530	3/2	45	12.3	7.1	11.1	9.1	3
Kishenehn	14A2	4300	2/26	41	11.5	7.6	7.6	8.1	8
Logan Creek	14A5	4300	2/23	38	10.6	6.4	8.1	8.4	7
Marias Pass	13A5	5250	3/3	75	24.3	15.2	18.6	15.0	20
N. Fork Jocko	13B7	6330	3/3	111	42.2	37.0	37.4	36.0	13
Quintonkon	13A13	3800	3/2	49	15.6	10.8	17.8	13.8	3
Coyote Hill	13B11	4200	3/1	42	13.2	11.4	13.7	10.0	7
Spotted Bear Mt.	13B2	7000	3/1	48	15.9	11.1	15.6	16.1	6
Strawberry Lake	13B10	6500	3/2	96	33.2	--	--	38.6	3
Trinkus Lake	13B1	6500	3/2	114	42.6	--	--	36.2	4
Trout Lake	13A12	3600	2/28	57	18.5	13.2	17.3	17.9	5
Twin Creeks	13B11	3580	2/28	42	14.8	9.0	12.7	10.8	3
Upper Holland	13B5	7000	3/2	103	36.9	--	--	31.8	4
PEND ORIELLE									
Hoodoo Creek	13C1	6200	3/1	166	63.3	--	--	43.1	3
UPPER CLARK FORK									
Coyote Hill	13B11	4200	3/1	42	13.2	11.4	13.7	10.0	7
Chessman Res.	12C5	6200	3/1	15.	3.4	4.2	5.7	4.4	18
Intergaard	13C4	6450	3/1	27	6.7	7.6	8.4	6.1	18
North Fork Jocko	13B7	6330	3/3	111	42.2	37.0	37.4	36.0	13
Picnic Grounds	13C6	6500	3/1	20	4.2	6.0	6.2	4.4	9
Pipestone Pass	12D1	7200	3/1	17	4.4	4.9	4.9	4.2	16
Southern Cross	13C5	6500	3/1	22	6.0	5.6	9.1	4.6	18
Stemple Pass	13C1	6900	3/2	45	12.1	8.9	12.0	8.3	20
Storm Lake #2	12C7	7780	3/1	41	10.5	12.8	--	--	1
Stuart Mill	13C6	6500	3/1	20	5.5	6.4	7.4	5.1	18
Tenmile, Lower	12C2	6250	3/3	26	6.4	6.4	7.2	5.7	19
Tenmile, Middle	12C3	6800	3/4	35	8.8	9.5	10.1	8.3	20
Tenmile, Upper	12C4	8000	3/4	39	10.9	12.1	12.9	10.7	19
*49 Meadows	15B10	5000	3/1	117	44.2	--	--	30.0	14
*Lookout	15B2	5250	3/1	125	45.8	29.8	37.0	29.8	29
Fish Lake			3/1	121	39.8	35.7	37.3	36.5	2

SNOW SURVEY DATA COLLECTED BY SOIL CONSERVATION SERVICE

PRIOR TO FEBRUARY 1, 1954
Season 1953-54

SNOW COURSE	Date Measured	Snow Depth	Water Cont.
DECEMBER 1, 1953			
Gibbons Pass	12/1	21	4.4
Coyote Hill	12/2	8	1.2
Marias Pass	12/4	13	2.0
Holbrook	12/8	9	2.0
JANUARY 1, 1954			
JEFFERSON RIVER (Rock-Beaverhead)			
*Camp Creek (Big Hole)	1/1	15	2.7
Gibbons Pass	12/31	41	10.8
MADISON RIVER			
Hebgen	1/5	22	5.3
West Yellowstone	1/4	19	3.7
Norris Basin	1/5	21	3.3
*Big Springs	12/28	32	6.1
*Island Park	12/29	26	4.5
*Valley View	12/29	17	2.4
GALLATIN RIVER			
21-Mile	1/4	33	6.5
MISSOURI RIVER MAIN STEM			
Chessman Reservoir	1/4	6	1.7
Tenmile, Lower	1/4	14	3.0
Tenmile, Middle	1/3	21	4.3
Tenmile, Upper	1/3	20	5.2
JANUARY 15, 1954			
Marias Pass	1/16	62	12.9
Coyote Hill	1/16	32	6.3
Lookout Pass	1/15	93	24.4
* Adjacent Basin			

SNOW COURSE	Date Meas.	Snow Depth	Water Cont.
DECEMBER 15, 1953			
Marias Pass	12/21	28	6.2
Coyote Hill	12/16	13	3.3
(Marias River) Marias Pass	1/5	49	10.8
COLUMBIA BASIN			
Coyote Hill	1/4	18	5.2
Desert Mt.	1/2	27	5.7
Lookout Pass	1/4	84	18.8
Holbrook	1/2	19	2.5
UPPER YELLOWSTONE			
Canyon	1/1	20	4.8
Cooke City	1/3	18	3.3
Lake Camp	1/1	16	3.2
*Lewis Creek Div.	1/1	53	14.9
*Astor Creek	1/1	45	9.3
*Tom Thumb Summit	1/1	31	6.3
(Shoshone River)			
East Entrance	1/1	16	3.3
Sylvan Pass	1/3	22	4.0
FEBRUARY 1, 1954 (See February Bulletin)			
FEBRUARY 15, 1954			
Marias Pass	2/16	74	22.5
Coyote Hill	2/17	37	11.1
Gibbons (Lost Trail Pass)	2/17	100	35.0

N O T I C E

The attached two sheets of snow survey data are revised summary data for the snow courses at Coyote Hill and Cattle Queen, Montana.

COYOTE HILL

The snow course at Rainy Lake had become infested with beavers and when the nearby stream would start to rise, water would flood the snow survey course. It was deemed advisable to move the course to higher ground and at the same time maintain a duplicate record for comparative purposes. The new location was selected at Coyote Hill which is close to the highway and well above the beaver-infested area. During 1952 and 1953, the courses in Coyote Hill and Rainy Lake were measured concurrently ten or twelve times during each season. These readings gave us a sufficient array of data to produce a conversion formula. With this formula, the data for 1947 through 1951 at Rainy Lake was moved to Coyote Hill and is shown on the new Summary Sheet No. 7.

CATTLE QUEEN

During the summer of 1953, the snow survey course at Cattle Queen was remarked and the number of measurements reduced from twenty to ten. The ten sampling points selected are the ten best sampling points of the old snow survey course. The snow survey course was not moved. The number of measurements were changed from twenty to ten. The summary tabulation shown on page six of our 1922-52 summary should be replaced by the attached sheet for Cattle Queen. These data are recomputations for the ten sampling points selected. If you are interested in keeping abreast of the corrections and additions to the summary, these two sheets could be pasted on Pages 6 and 7, respectively, in our 1922-52 Snow Survey Summary for Montana.

A. R. Codd,

A. R. CODD
Snow Survey Leader for Montana

Sec. 7: T35N: R17W
Lat. 48-48½: Long. 113-50

CATTLE QUEEN
Montana

No. 13-A-1
Elev. 4700

Month	March			April			May					
Year	Date	Snow In.	Water In.	Date	Snow In.	Water In.	Date	Snow In.	Water In.	Date	Snow In.	Water In.
1939				3/30	81	31.9	4/28	54	25.6			
1940				4/2	55	19.1	4/30	37	15.0			
1941				3/27	46	18.2	5/1	6	3.0			
1942				3/30	62	20.6	4/28	36	13.2			
1943				3/31	88	31.0	4/29	45	21.0			
1944				3/28	65	19.9	5/4	25	10.0			
1945	2/28	70	17.8	4/1	75	26.4	Not	Measured				
1946	2/28	103	35.0	3/29	92	39.5	"	"				
1947	2/27	94	33.9	4/1	93	38.4	"	"				
1948	2/26	91	24.4	3/31	95	31.0	"	"				
1949	2/27	86	30.9	4/7	82	35.0	"	"				
1950	2/27	105	34.8	4/2	120	45.2	"	"				
1951	3/2	91	31.8	3/31	99	38.0	4/27	73	30.0			
1952	3/5	92	32.4	3/31	94	32.5	Not	Measured				
1953	2/26	94	29.5	3/30	90	33.2	"	"				
Total		826	270.5		1237	459.9		276	87.8			
Avg.		92	30.1		82	30.7		39	12.5			
1954												
1955												
1956												
1957												
1958												
1959												
1960												

Sect. 12T 18N: R16W
Lat. 47-20 Long. 113-35

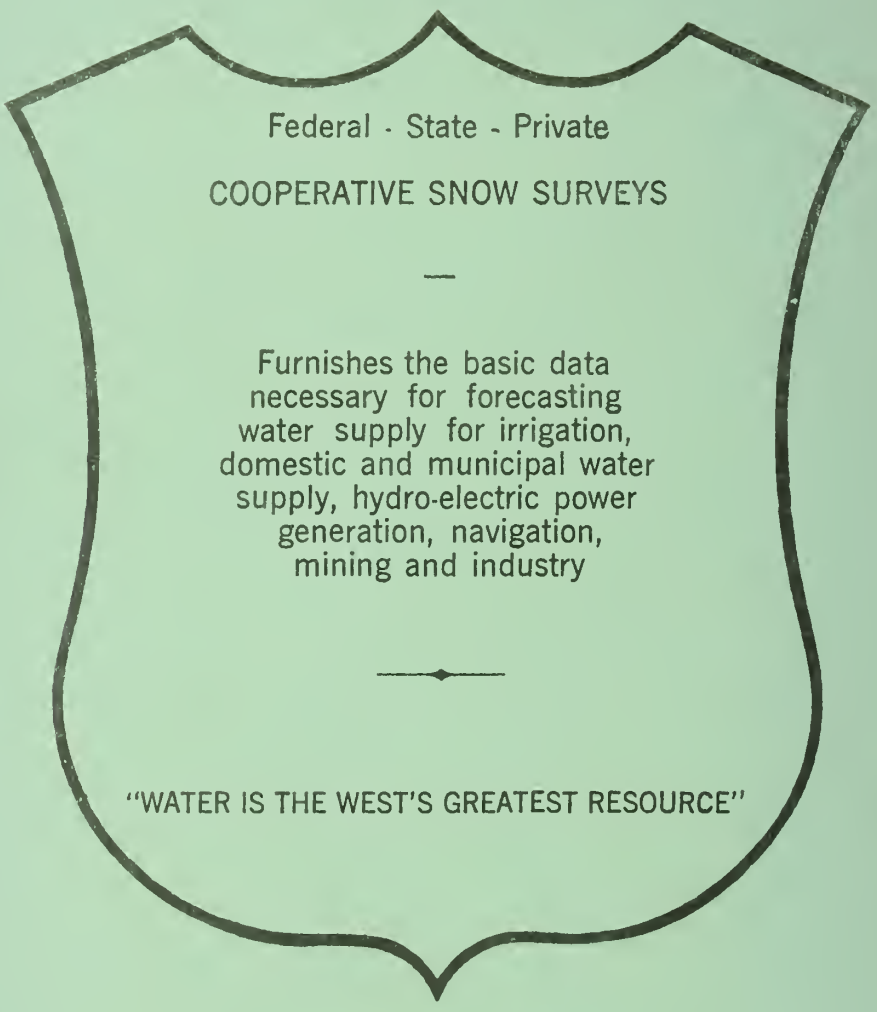
COYOTE HILL
Montana

No. 13-B-11
Elev. 4200

Month	December 1			December 15			January 1			January 15		
Year	Date	Snow In.	Water In.	Date	Snow In.	Water In.	Date	Snow In.	Water In.	Date	Snow In.	Water In.
1952	12/1	8	1.4	12/15	19	3.1	1/2	33	8.0	1/15	32	9.2
1953	12/3	5	0.5	12/15	17	3.0	12/31	18	3.4	1/15	18	4.6
1954	12/2	8	1.2	12/15	13	3.3	1/4	18	5.2	1/15	32	6.3
Total			3.1			9.4			16.6			20.1
Avg.	(3)		1.0	(3)		3.1	(3)		5.5	(3)		6.7
1955												
1956												
1957												
1958												
1959												
1960												

Month	February 1			February 15			March 1			March 15		
Year	Date	Snow In.	Water In.	Date	Snow In.	Water In.	Date	Snow In.	Water In.	Date	Snow In.	Water In.
1947	1/31		5.5				2/28		8.8			
1948	1/30		6.0				2/27		7.8			
1949	2/3		8.2				2/27		12.6			
1950	2/2		10.0				2/27		12.0			
1951	Not Measured						2/26		3.6			
1952	2/1	35	10.4	2/15	35	11.2	2/28	43	13.7	3/15	39	14.5
1953	2/2	29	8.2	2/15	31	9.2	3/2	39	11.4	Not Measured		
1954	2/1	24	10.1	2/17	37	11.1	3/1	42	13.2			
Total			58.4			31.5			83.1			
Avg.	(7)		8.3	(3)		10.5	(8)		10.4			
1955												
1956												
1957												
1958												
1959												
1960												

Month	April 1			April 15			May 1			May 15		
Year	Date	Snow In.	Water In.	Date	Snow In.	Water In.	Date	Snow In.	Water In.	Date	Snow In.	Water In.
1947	3/31		8.8				5/3	0	0			
1948	3/29		9.6				5/1	0	0			
1949	3/29		12.8				5/1	Trace	0			
1950	3/30		16.8				5/2	15	8.9			
1951	4/1		4.3				4/30	0	0			
1952	4/1	38	14.9	4/14	23	12.0	5/1	0	0			
1953	3/30	30	11.4	Not measured			5/1	8	3.7			
Total			78.6						12.6			
Avg.	(7)		11.2				(7)		1.8			
1954												
1955												
1956												
1957												
1958												
1959												


Federal - State - Private
COOPERATIVE SNOW SURVEYS
Furnishes the basic data necessary for forecasting water supply for irrigation, domestic and municipal water supply, hydro-electric power generation, navigation, mining and industry
"WATER IS THE WEST'S GREATEST RESOURCE"